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(54) Title: CONTROLLED DELIVERIES AND DEPOSITIONS OF PHARMACEUTICAL AND OTHER AEROSOLIZED MASSES

(57) Abstract

A system (1) for the precisely and accurately controlled delivery and collection of aerosolized masses. The system (1) includes an aerosol generator (100), an upstream electro–optional aerosol mass concentration sensor (200) past which aerosols are transported at a known upstream volumetric flow rate, a deposition zone (300) within which aerosols are collected on or within a media, and a downstream electro–optical aerosol mass concentration sensor (201) past which aerosols uncollected in the deposition zone (300) are transported at a known downstream volumetric flow rate. The net mass of aerosols collected in the deposition zone (300) is determined by integrating over time the product of mass concentration measured by the upstream electro–optical sensor (200) and the upstream volumetric flow rate minus the product of mass concentration measured by the downstream electro–optical sensor (201) and the downstream volumetric flow rate. The aerosol generator (100) includes a metering pocket into which powder is loaded, and a fluidizing jet which produces an expansive bolus that is directed into a mixing chamber. The deposition zone (300) collects aerosols by filtration, impaction or electrostatic attraction.